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EXAMINER	
FISCHER, JUSTIN R	

ART UNIT	PAPER NUMBER
1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/585,068	BOIOCCHI ET AL.	
	Examiner	Art Unit	
	Justin R. Fischer	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *35-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *061209*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 35-44, 56-58, 60, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi (JP 02249707). As best depicted in Figure 3, Ohashi teaches a pneumatic tire construction including a tread, wherein said tread is formed of a central component 2 (first elastomeric material) and an additional component 3 (second elastomeric material) having a groove define therein. The reference further teaches that the second elastomeric material is designed to improve abrasion/wear resistance- such an improvement is achieved by using a second elastomeric material having a dynamic modulus of elasticity that is between approximately 1 and 9 MPa greater than that of the first elastomeric material (Abstract). While the reference fails to expressly disclose the respective compressive moduli, one of ordinary skill in the art at the time of the invention would have expected the disclosed elastomeric materials of Ohashi to satisfy the claimed compressive modulus relationship (modulus of second material is at least 1.3 times modulus of first material) and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed relationship.

Lastly, with respect to claim 1 (and dependent claim 39), a composition designed to provide improved abrasion resistance and having a greater modulus of elasticity (as compared to an additional composition) would be expected to demonstrate a greater hardness. It is emphasized that modulus of elasticity and hardness almost always have a positive relationship (as opposed to an inverse relationship). As such, one of ordinary skill in the art at the time of the invention would have expected the second elastomeric material to have a greater hardness, as compared to the first elastomeric material. Furthermore, since IRHD hardness values of tire components are generally in the range of 50, it is evident that the claimed difference of 10 percent, more preferably 5 percent, defines a variety of embodiments and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed relationship.

With respect to claim 36, the general teaching of Ohashi is to provide a second elastomeric material having either a slightly greater modulus of elasticity or a significantly greater modulus of elasticity- such a disclosure is seen to render the claimed range obvious absent a conclusive showing of unexpected results.

As to claims 37 and 38, Ohashi suggests that (a) the first elastomeric material has a dynamic modulus of elasticity approximately between 6 and 14 MPa and (b) the second elastomeric material has a dynamic modulus of elasticity approximately between 11 and 19 MPa. One of ordinary skill in the art at the time of the invention would have expected the compressive modulus of the respective elastomeric compositions to be on the same order as those detailed above and applicant has not

provided a conclusive showing of unexpected results to establish a criticality for the claimed absolute values.

With respect to claims 40 and 41, the claimed ranges are extremely broad and include relative language to define their lower and upper limits ("about"). Additionally, the claimed values are consistent with those commonly associated with tire components, including tread compositions. Absent any conclusive showing of unexpected, one of ordinary skill in the art at the time of the invention would have found it obvious to use compositions having the claimed hardness.

Regarding claims 42-44, Takaki recognizes the desire to include polyamide fibers in order improve mechanical properties and abrasion resistance without a corresponding increase in Mooney viscosity (Column 6, Lines 31+). As such, one of ordinary skill in the art would not have expected the respective compositions (first and second elastomeric materials) to have a viscosity relationship outside the broad range of the claimed invention. Additionally, the absolute values defined in claims 43 and 44 are consistent with those commonly associated with tire compositions, as shown for example by Takaki (Column 18, Lines 10+). Lastly, it is noted that claims 43 and 44 include relative language and thus fail to define over the tread design of Ohashi in view of Takaki.

As to claims 56, 60, and 61, Figure 3 clearly depicts a plurality of grooves. With specific respect to claim 61, the claims do not require first and second sectors and as such, a plurality of first sectors including grooves can be arbitrarily selected.

With respect to claim 57, the second elastomeric material 3 is shaped in a way so as to form a lining surrounding said at least one groove.

Regarding claim 58, the second material of Ohashi has a thickness between 0.3 and 10 mm, which fully incorporates the claimed range.

3. Claims 45, 46, and 50-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi as applied in claim 35 above and further in view of Takaki (US 5,006,603). As detailed above, Ohashi includes a second elastomeric material having a high modulus in the groove sections of the tread in order to provide improved wear/abrasion resistance. While the reference fails to expressly disclose how an increased modulus and resistance is achieved, it is well known to include fibrillated fibers of polyamide in tire tread compositions to provide the aforementioned benefits, as shown for example by Takaki (Abstract and Column 6, Lines 31-68). Thus, one of ordinary skill in the art at the time of the invention would have fount it obvious to include polyamide fibers in the second elastomeric material of Ohashi to obtain the desired modulus and abrasion resistance.

As to claim 46, the base components of the first and second elastomeric materials would be expected to be similar (e.g., SBR, synthetic polyisoprene). More particularly, the respective components can be viewed as having "substantially" the same mechanical properties.

Regarding claims 50 and 51, Takaki suggests the inclusion of between 1 and 100 phr of short polyamide fibers.

With respect to claims 52-55, it is well known to include carbon black and/or silica in tire rubber compositions and one of ordinary skill in the art at the time of the invention would have readily appreciated the use of either or both reinforcing filler in the composition of Ohashi. It is further noted that Takaki even recognizes the known inclusion of polyamide fibers with each of the disclosed reinforcing fillers (Column 15, Lines 1+).

4. Claims 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi as applied in claim 35 above and further in view of Larson (US 6,598,645). As detailed above, Ohashi includes a second elastomeric material having a high modulus in the groove sections of the tread in order to provide improved wear/abrasion resistance. While the reference fails to expressly disclose how an increased modulus and resistance is achieved, it is well known to include intercalated clay (layered inorganic materials) in elastomeric compositions to provide the aforementioned benefits, as shown for example by Larson (Abstract, Column 2, and Column 4) .

In this instance, Larson suggests the inclusion of intercalated organoclays that are at least partially exfoliated in situ, wherein the exfoliated platelets have a thickness of about 1 nm and the particles of the stacked platelets have a thickness between 10 and 40 nm. As such, one of ordinary skill in the art at the time of the invention would have found it obvious to include such an inorganic reinforcement in the tread of Ohashi. It is emphasized that tire compositions are generally described as including a wide variety of known reinforcing fillers, including carbon black, silica, and additional in organic fillers- absent any conclusive showing of unexpected results, one of ordinary

skill in the art at the time of the invention would have found it obvious to include such a known reinforcing filler in the tread of Ohashi. Lastly, a fair reading of Larson would have generally suggested the inclusion of such an inorganic filler in tire compositions.

5. Claims 35, 59, 62-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (JP 53080602) and Ohashi. As best depicted in Figure 2, Fukuda teaches a pneumatic tire construction having a tread formed of a first elastomeric material 5 and a second elastomeric material 6, wherein said second elastomeric material is included in a groove section of the tread. The reference further teaches that the second elastomeric material provides higher wear resistance than the first elastomeric material. While the reference fails to expressly disclose the claimed modulus and hardness relationship, one of ordinary skill in the art at the time of the invention would have recognized such a disclosure as teaching a higher modulus and hardness for the second elastomeric material. Ohashi provides one example of a similar tire design in which a rubber composition having a higher modulus (and thus a higher hardness) is used in combination with a first elastomeric material in order to, among other things, provide improved wear/abrasion resistance. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to use first and second elastomeric materials satisfying the claimed invention.

As to claim 59, the tread of Fukuda includes a plurality of first sectors 6 and a plurality of second sectors 5.

Regarding claim 62, said first sectors extend over the entire thickness of the tread.

As to claims 63-65, whether or not the base portions of the second elastomeric material are connected to one another (and thus define an "additional layer") does not appear to be critical to the inventive concept of Fukuda. It is emphasized that the primary concern of Fukuda is in the inclusion of a second elastomeric material in the vicinity of the groove sections in order to improve wear/abrasion resistance. One of ordinary skill in the art at the time of the invention would have readily appreciated an arrangement in which the base portions of respective first sectors are connected to one another. In this instance, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed thickness of the connecting portion. Lastly, it is emphasized that tread/cap and similar mutli-layered tread designs are commonly formed with a wide variety of arrangements, including ones in which a ground contacting rubber is connected within the tire to define an underlayer.

With respect to claim 66, said first sector has a width greater than a width of the groove.

As to claim 67, the figures generally depict the first sectors as having a slightly greater width than the corresponding grooves- such a depiction appears to be consistent with the broad range of the claimed invention (difference of between 4-10 mm) and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed arrangement.

Regarding claim 68, the grooves have a depth that extends beyond the meridian plane of the first sectors.

Response to Arguments

6. Applicant's arguments filed August 12, 2009 have been fully considered but they are not persuasive.

Regarding the modulus, applicant argues that just because both Ohashi and Applicants considered modulus of elasticity values does not mean or suggest that "one skilled in the art would expect the elastomeric materials of Ohashi to satisfy the claimed compressive modulus relationship.

First, it is agreed that Ohashi teaches rubber compositions having specific tensile modulus properties. However, it is well taken that tensile modulus and compressive modulus values in rubbers are extremely similar, as shown for example by Instron. In this instance, Ohashi suggests a plurality of modulus values for the first and second elastomeric materials, with the condition that the second elastomeric material has a greater modulus by between approximately 1 and 9 MPa. It is clearly evident that a wide variety of embodiments would result in a ratio satisfying the claimed relationship. Second, it is agreed that the tensile modulus disclosed by Ohashi is at room temperature. However, EACH of the first and second elastomeric materials would be expected to demonstrate a decrease in modulus at elevated temperatures, such that the claimed ratio would not be expected to deviate significantly from that at room temperature. The compressive modulus at an elevated temperature is an inherent property of a given rubber composition and it is not required for Ohashi to expressly

disclose modulus values at each and every temperature. Given the general disclosure of Ohashi, there are a wide variety of embodiments in which the modulus ratio at room temperature is greater than 2 and one would not expect the ratio to deviate significantly since both compositions would experience a decrease in modulus at an elevated temperature.

Also, the fact that Ohashi is primarily concerned with the absolute difference between the modulus values in respective elastomeric portions, as opposed to the claimed ratio, does not render the claimed invention unobvious. In particular, the relevant elastomeric portions necessarily demonstrate a ratio, independent of whether the reference identifies such a ratio as being critical. It is not required for the reference to expressly recognize or disclose the same benefits appreciated by applicant. In this instance, Ohashi specifically desires the second elastomeric material to have a greater modulus than the first elastomeric material and such a teaching broadly suggests a claimed ratio greater than 1.0 (fully encompasses claimed ratio of at least 1.3).

With respect to the hardness, applicant argues that the hardness and modulus are considered in the art so unrelated that the hardness can not give sufficient information about the modulus and vice versa. The examiner respectfully disagrees. As set forth in the previous communication, it is well recognized that compositions demonstrating greater modulus values almost always demonstrate greater hardness values. Boileau (US 3,406,733- Column 2, Lines 3+) and Dudek (Column 5, Lines 0+) recognize such a relationship. Also, as stated above, tensile and compressive modulus are extremely similar to one another. Thus, one of ordinary skill in the art at the time of

the invention would have expected the second elastomeric material to demonstrate a greater hardness, as compared to the first elastomeric material.

With further respect to the hardness, the above noted relationship simply suggests that harder rubber compositions generally demonstrate greater modulus values- such a relationship does not suggest that a hardness ratio and a modulus ratio are identical to one another for a given rubber composition. A given rubber composition can demonstrate a 10% difference in hardness while also demonstrating a 30% in modulus. Given the general disclosure of Ohashi, one of ordinary skill in the art at the time of the invention would have readily appreciated using such a rubber composition in the tire of Ohashi. It is emphasized that the critical aspect of Ohashi is the use of a second elastomeric material having a greater hardness and modulus, as compared to a first elastomeric material, and such a disclosure describes tires satisfying the claimed quantitative relationships.

It is agreed that the disclosed quantitative relationships of Ohashi do not necessarily fall with applicant's claimed range. However, as detailed above, the critical aspect of Ohashi is the use of a second elastomeric material having a greater hardness and modulus, as compared to a first elastomeric material, and such a disclosure describes tires satisfying the claimed quantitative relationships. It is further noted that applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed relationships.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin Fischer
/Justin R Fischer/
Primary Examiner, Art Unit 1791
October 23, 2009